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ABSTRACT

This paper reports principally on two studies, prompted by research on school effectiveness in the United States and England, which indicate globalization is beginning to affect school improvement. The first study cites case studies of two schools--from working-class, multi-ethnic, poorly educated areas of Singapore and London--to determine if these schools can be validly compared, and if so, to point out how these schools can learn from each other. School improvement began when the school acquired a new, enthusiastic head teacher who believed everyone capable of learning, and who infused staff and students with this ideal. The second study questioned whether student groupings could make a difference in certain areas. Three separate groups of 15 schools were selected to determine any differences in student levels of self-esteem, staff attitudes to groups, and academic progress. It appears that ability groupings do not have a strong or uniform impact on pupil progress. (Contains 35 references.) (DFR)

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Globalisation, Effectiveness and Improvement

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

I am pleased to be here in Hong Kong again. I was last here two years ago and it is fascinating to view the changing face of this alluring mixture of East and West. I have also spoken at a number of ICSEI meetings over the last eleven years and it is a privilege to do so again.

My presentation is about two powerful forces on our lives:

- Education - and
- Globalisation.

The first force - *education* - has the power to change lives

- to make available all knowledge that has been built up by previous generations
- to inculcate skills from the most rudimentary to the most sophisticated
- to provide access to the values and culture not only of one's own tribe but of all others
- and to provide an entree into the magic and sometimes dark world of the arts.

The power of the second force - *Globalisation* - is only just being realized.

Will it work for the good of the world - enabling education to reach all peoples and enhance our talents and capabilities so as to free the world's population from the yoke of poverty?

Or will it lead inexorably to the further domination of the majority of people by the business interests of the few?

In the early years of the 20th century HG Wells wrote

'Human history becomes more and more a race between education and catastrophe' (Wells. 1920).

At the beginning of the 21st century, this race may be reaching a vital stage.

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My plan for the presentation will be to pose five important questions:

- What is Globalisation?
- What is the impact of Globalisation on schooling?
- How has the research on school effectiveness carried out in two parallel studies in the United States and England developed into a global drive for school improvement?
- What are the challenges for schooling in a global future?
- Is there a special role for researchers in these developments?

Today, as always, I will be drawing on the work of many of my colleagues and associates - some of whom have worked together for over twenty years. I wish to pay tribute to their energy, ideas and interpretations which have contributed so much to my own understanding of schooling and its various impacts.

What is Globalisation?

James Porter - a distinguished British educator - defines Globalisation as:

'*The process by which the peoples and nations of the world are increasingly drawn together into a single entity*' (Porter, 1999, 53).

This deceptively simple definition might conjure up a vision of a peaceful coming together, a renouncing of individual interests in favour of a grand collaborative project led by the governments of the world and supported by all people of good will. But there is also a countervision of a mad scramble for domination by the powerful nations of the world over the rest. A new form of colonisation but, instead of being armed with weapons or with Bibles, the new *conquistadores* are bristling with the financial and electronic implements of economic domination.

Fascinatingly, all this was predicted by Marshal McLuhan as early as the 1960s:

'*The new electronic interdependence recreates the world in the image of a global village*' (McLuhan, 1962, p 31).

Globalisation is one of the key five 'drivers of change' described in a recent paper prepared by the British Government's Performance and Innovation Unit. The others: population growth, scientific innovation, environmental degradation and a developing post-materialistic ethic are fascinating - and related to Globalisation - but will not be dealt with in any detail (See Wintour 1999.

Of course, some aspects of Globalisation are not new. Empires, from the start of history, have sought to extend their trade and domination. The Roman occupying force of Britain was made up of soldiers and administrators drawn from many different countries in the known world of that time - often serving in the Roman army as a means of gaining citizenship.

Furthermore, not all colonial efforts have been led by governments. The British endeavours in Canada were led by the Hudson Bay fur-trapping Company and, in India, by the East India Trading Company. Only when the opportunity for profit had been clearly established did the state become involved.

How has Globalisation come about?

There are two main reasons:

a) *Marketization*
The search for more extensive markets is bound to promote the escape from nationally imposed regulations - such as exchange controls, government interest rates and trade barriers.

b) *Technological advances*
Developments in computing and the Internet have enabled the rapid transfer of information and money to any part of the world. Thus, companies can trade in cyberspace and avoid paying national taxes. This, in turn, reduces the funds national governments have available to invest in public services.

How is Globalisation manifest?

Globalisation is characterised by four relatively new phenomena.

1) *Capital transfer*
As I have just noted, international capital travels around the world in the pursuit of profit. This gives individual dealers extraordinary influence. In the late 1980s, for example, the UK experienced a huge loss of value in its currency and, as a result, opted out of the European Exchange Rate Mechanism. In the late 1990s, similar effects were felt by investors in Latin America and in Japan, Hong Kong and other Pacific States.

2) *Increasing free trade*
Free trade means that all countries have to play according to the same rules. Whatever the difficulties or extra costs of producing goods, the price has to compete with the lowest price available. Whether the product is coal or bananas - or even educational services - it is increasingly difficult for governments to 'protect' home-produced goods.

As we now know, a reaction to the impact of such 'free trade' took place in Seattle at the World Trade Organisation conference and resulted in massive demonstrations and riots. Interestingly, the Seattle riots were seen by some commentators as the greatest manifestation of anti-materialism since the 1960s.

3) *World-wide recruitment*
This means advertising and appointing staff from anywhere in the world to posts anywhere else in the world, often through the use of the web. Whether the number of jobs has increased as a result, however, is not clear.

At the 1999 British Educational Research Association Annual Conference, Barry McGaw (of the OECD) showed an analysis of Australian employment trends over ten years.

Australian workforce %annual changes - 1986 -96

Occupational categories	M	F	All
Symbolic analysis (conceptual)	1.7	4.9	2.4
Symbolic analysis (technical)	-0.8	5.6	0.1
In-person services (professional)	0.9	2.8	2.1
In-person services (intermediate)	1.8	3.0	2.3
In-person services (elementary)	3.3	4.0	3.7
Routine production (advanced skills)	-0.2	0.4	-0.1
Routine production (white collar)	-1.9	0.4	-0.2
Routine production (blue collar)	0.4	0.2	0.4
Routine production (low skill)	0.4	1.2	0.7
All	0.7	2.4	1.4

Source Maglen & Shaw, 1999 (cited in McGaw, 1999)

It is clear from this table that there has been a growth of knowledge workers ('symbolic analysts') amongst female workers but few other occupational groups have increased and some have markedly shrunk.

Other ways in which Globalisation is manifesting itself include:

4) *The search for cheap labour*
This means siting processing plants in - or moving the work through electronic means to - areas of low wages. Ulrich Beck, a German sociologist, reports the phenomenon of evening flight departure announcements in Berlin's international airport being made by a woman sitting at a console in California. Because of the time difference, she does not have to be paid overtime rates! (Beck, 1999). Thus telecommunication advances have removed what used *"to seem an inescapable part of the labour system of industrial society: the need for people to work together*

at a certain place to produce goods or services. ... In theory...labour and production processes could be distributed across the globe so that the lowest wage is always paid at every hour of the day" (Beck, 1999, 25).

Beck goes on to describe the new game of 'global horse trading' in which transnational corporations seek ways to find the cheapest tax environment and most favourable infrastructure.

So what is the impact of such Globalisation?

The impact of these trends means that the role and power of the nation state has been much reduced.

It also means that trans-national corporations have greatly increased their power. As we have seen, they can produce goods in one country, pay taxes in another and demand certain levels of state investment in infrastructure in the country where they choose to live. Beck argues that this power over national governments is weakening the power of the nation state and threatening democracy. This has important implications because *"the nation state has been crucial to modern cultural identity, social cohesion and the development of democracy itself"* (Beck, 1999, 26).

Developing countries, moreover, have had to make agreements with the International Monetary Fund (IMF), the World Bank or the World Trade Organisation (WTO) which, in the long run, may well *increase the divide* between rich and poor and countries of the northern and southern hemispheres. These developments are also encouraging an 'Americanization' of national cultures (United Nations Development Programme Report, UNDP, 1993).

My conclusion to the first question, therefore, is that:

- the neo-classical economic theory that Globalisation would automatically close the gap between richer and poorer has been shown to be faulty
- the new globalized economy - instead - has reduced the economic freedom of sovereign states
- and it remains to be seen whether it will produce overall positive or negative outcomes in the form of an improvement or a worsening of employment conditions.

Furthermore, will what started as an economic or trade phenomenon invade all other walks of life?

To take just five examples:

Sport: Globalisation has happened already. (Few of the great English football teams boast many players born within the jurisdiction of the club name.)

Leisure: We can book flights and entire holidays with companies with 'globe' and 'global' in their names.

Cuisine: One of the first groups to go global were the Chinese cooks!

Crime: Groups of drug traffickers, terrorists and other criminals from one country move between countries with impunity.

Culture: This is the big question. Will we all end up dressed in our 'uniforms' of T-shirts and jeans, enjoying our global refreshments of Coca Cola and Big Macs, listening to the same pop music and collecting the same pop art?

My second question concerns the impact of Globalisation on schooling

In terms of the impact of Globalisation on schooling, we are still in early days, though Porter argues that *"Britain and many other western democracies have retreated from the earlier political commitment to 'education for democracy' in favour of a drive for the acquisition of basic skills to enable them to compete in the global market economy"* (62).

Porter poses the problem of *balance*. Just how many of the aims of an education (for example, for a 'good life') should countries let go in order to focus energy on specific objectives such as literacy and numeracy? Of course, most people are committed to the spread of literacy as a tool of empowerment. Paulo Freire - the radical Brazilian educator - made this case crystal clear. But he also believed, as did Aristotle, that education had to be contestable:

"Education is an act of love, and thus an act of courage. It cannot fear the analysis of reality or, under pain of revealing itself as a farce, avoid creative discussion" (Freire, 1970).

Already it is possible to discern some effects of Globalisation on schooling:

- the growing *mobility* of post-school students - able to study within the European Union with the same rights and fees as nationals - and migrating from developing countries to developed ones;
- the increasing use of *electronic communications* between teachers, administrators and even pupils and the widespread use of the Internet as a source of information;
- the development of *distance learning* for post-school students (which provides a model for students of school age);
- the growing interest in *comparative information* by researchers, policy makers and practitioners
- the increasing importance of *international tests*.

The Third International Mathematics and Science Study (TIMMS) is increasingly being seen as an important indication of the educational standard of a country (Keys et al, 1996). In England, an admiring interest in the educational methods and achievements of economically successful countries has been stimulated by David Reynolds' Ofsted report on Taiwan (Reynolds, 1996).

Our new Labour Government intends to introduce 'world class' tests, based on the TIMMS, and aimed at stretching and developing those who are ahead of their peers. Yet British schools have traditionally done well for the most able students but rather badly for those who find learning difficult. One question British educators are now asking is whether 'world class tests' will enhance or diminish this trend?

My interim conclusion to the second question is that, although the impact of Globalisation on schooling has been relatively limited so far, signs of its increasing influence can be clearly discerned and it is likely that it will prove as powerful in education as it has done in economics.

Let me look now directly at schooling and, in particular, how work on school effectiveness has developed and - in its own way - is also contributing towards the shift to Globalisation.

My third question - therefore - focuses on the work of this Congress on Effectiveness and Improvement.

The origins of school effectiveness stem from reactions to the work on equality of opportunity undertaken by James Coleman and his collaborators (Coleman et al, 1966) and Christopher Jencks (Jencks et al, 1972). As people here will know only too well, that work concluded that "*if all (American) high schools were equally effective, differences in attainment would be reduced by less than one per cent*" (cited by Ouston et al, 1979, p3).

These conclusions were deeply distressing for those with responsibilities in public education.

Fortunately, in the United States, the late Ron Edmonds (Edmonds, 1979) and, in the United Kingdom, Sir Michael Rutter (Rutter et al, 1979) responded by embarking on what was, with hindsight, to emerge as the first phase of school effectiveness research .

The first phase of school effectiveness research

Two seminal studies undertaken, independently, by Edmonds and Rutter et al during the 1970s were concerned with examining evidence and making an argument about the potential power of schooling to make a difference to students' life chances. The researchers set out to investigate whether schools - in their national contexts - showed any effects when account was taken of the differences in their student populations.

Although neither the Edmonds or the Rutter teams knew of each other's work until their results had been published, the findings were similar: *schools did make a small but highly significant difference to the life chances of their students*. Thus, the early existence of independent research

projects in two countries asking similar questions and drawing, to a certain extent, on similar methodologies demonstrated the potential for further global investigations.

The second phase of school effectiveness research

Studies undertaken during the 1980s focused on improving the methodology and in replicating the research designs with pupils of different ages and in different settings. I have discussed this in detail in my chapter in Halsey et al (1998). A neat example of the more sophisticated approach to empirical studies is the large-scale Louisiana study led by Charles Teddlie and Sam Stringfield (Teddlie, Kirby and Stringfield, 1989).

I was fortunate in being in a position to play a role in this phase whilst working as Director of Research and Statistics for the Inner London Education Authority from 1978-1985. Our research team - which included Louise Stoll and Pam Sammons - replicated the central finding of earlier work that schools had different levels of effectiveness and that *some* inner city primary schools receiving disadvantaged pupils could still be effective in promoting progress (Mortimore et al 1988). I recall reporting these findings at the inaugural meeting of this Congress in London in 1988.

We identified a number of what we termed key factors concerned with both whole school and classroom processes. These factors have been much debated since the publication of our findings and have - in general - been replicated by international studies. More than 160 studies were reviewed to create a list of factors operating at the school level (Sammons et al, 1995).

In 1991 I gave a keynote speech to this International Congress at the meeting in Cardiff. Subtitled 'Which way at the crossroads?', the paper looked back over two decades of school effectiveness research as a prelude to my considering the new directions that researchers faced in the future (Mortimore, 1991). It is interesting to review now, almost a decade later, which directions have been followed and how different the landscape now appears.

- *The application of concepts and methods to other parts of education - special schools, post school colleges and universities.* This is just beginning

- *The transfer of energy to school improvement.* This took a while but has now happened with a vengeance - so much that Geoff Whitty and I have attempted to remind both policy makers and practitioners that the other social factors cannot be wished away (Mortimore and Whitty, 1997).

- *The development of theory.* This happens in a faltering way.

- *The incorporation of - or subordination to - government-led restructuring.* This has happened in parts of the US and parts of Australia and in New Zealand and, in particular, in England.

- *The development of cost-effectiveness studies.* This is developing with the work of

researchers such as Hanushek (1989), Hedges et al (1994), Levacic (1989) and Thomas (1990) - but more studies are needed.

- *The re-instatement of equity as a primary goal.* This in my judgement is also happening in lots of countries but in a 'one step forward, two steps back' way.

As I have argued elsewhere - the advantaged seldom voluntarily renounce their advantages. The most natural thing in the world is to pursue your own advantage and to pass this on to your children. But this means that the disadvantaged fall even further behind. The social processes and the transformations are complex - as writers such as Nick Davies (1998) have shown - and they pose an enormous challenge for a reforming Government. As Tony Blair, the British Prime Minister, argues - "hard choices have to be made." The genuine pursuit of equity requires some very hard choices!

The third phase of school effectiveness research

This phase has seen some new empirical studies of effectiveness, for example, the work on secondary school subject departments by Sammons et al (1997) and a yet-to-be-published book on an exciting Scottish study led by John MacBeath and a team of researchers from both Strathclyde University and the Institute of Education (MacBeath and Mortimore, forthcoming).

But the focus during this phase shifted from research into school effectiveness into action research into school improvement in which the research communities have quite properly played second fiddle to the practitioners. [And, according to Jap Scheerens, they have also had to resist their arguments being reduced to an oversimplified economic model of the "education production process" (Scheerens, 1992, 3)].

The fourth phase of school effectiveness research

We are now into the Globalisation of the study of the schools and ways of enhancing learning at the individual, group and school, national and international levels. The location of this conference in Hong Kong where - in so many ways - East meets West is thus most fitting. Are schools in the east and in the west so different that comparison is not possible?

It was this question that colleagues from the National Institute of Education in Singapore and the Institute of Education in London set out to answer.

Case studies of schools in Singapore and London

The report of this study illustrates how schools in different settings and operating within different cultures can be compared and can learn from each other (Mortimore et al, 2000). Two schools from Singapore and two from London were reviewed by local teams of researchers and members of the business and other professional communities. The four schools were similar in that they all received pupils whose achievements were deemed to be at or below average for their age and who left school with an above average record of achievement. All the schools were in working-

class areas and all were multi-ethnic. Parents tended to be poorly educated, with manual jobs. All four schools had poor reputations among prospective parents.

In each, the transformation began when the school acquired a new, enthusiastic head teacher who believed everyone capable of learning and knew how to infuse staff and students with this ideal.

Other elements essential for lasting change that were present in each school's improvement programme included:

- motivating staff
- focusing on teaching and learning
- enhancing the physical environment and
- changing the culture of the school.

We found that though the four schools used many similar strategies, the different contexts in which they were operating meant that similar actions did not always produce similar results. The contextual differences we noted include:

- *National attitudes to education.* In Singapore, education is held in high esteem and teachers enjoy high status in the community. Pupils generally respected their teachers, took pride in being studious and behaved well in class. Case study pupils took on 'domestic' and administrative responsibilities for the life of the school and peers supported each other's learning.

- *Views of intelligence.* The Asian attitude that anyone who works hard and puts in consistent effort will succeed contrasted with the commonly-held Western view that intelligence is inborn and that, although hard work helps, success is mainly a result of natural endowments.

- The motivating effect of *good career prospects* in Singapore which, for a number of years, has enjoyed full employment.

- The odds of *examination success.* The educational, cultural and socio-economic differences made the Singaporean setting more conducive to success than the London context. During the year of the study, 66 per cent of pupils in Singapore reached nationally set targets in examinations, compared to only 46 per cent in England - a majority rather than a minority!

Our main findings are that:

- improvement techniques must fit with the grain of society rather than go against it

- indiscriminate borrowing from other cultures may not achieve the desired results

- (in line with other studies of school improvement) there is no 'quick fix' for school improvement

- change has to be carried out by the school itself. *"Whilst it is good to have friends and supporters amongst parents, governors and the wider local and business community, the will and the effort to change have to come from within".*

- Similarly, it must be recognised that schools cannot - by themselves - overcome the well-established link between the social background of the student and their subsequent attainment.

In both settings, despite some exceptions, those from disadvantaged homes generally performed less well in competitive examinations than their more advantaged peers.

We also identify a number of questions for head teachers and their staff to ask of themselves in the light of the findings from the four schools.

The questions for the English schools include:

- whether the balance of whole-class, group and individual teaching is right. (We found in *School Matters* that the most effective teachers had a repertoire of techniques for dealing with the whole class, the group, or individual students.)

- whether there are more imaginative ways of grouping students which produce a narrower range of capability yet avoid the negative impacts of streaming and setting

- whether students can be more involved in all aspects of the life of the school (including the domestic and the administration of school events - such as the annual Teachers' Celebration Day).

The questions for the Singaporean schools include:

- whether there is scope for a greater emphasis on rewards

- whether there would be value in groups of parents and community forming organisations akin to English school governing bodies.

- whether more creative and innovative approaches can be used to leaven the current didactic emphasis

How best to group learners is one of the unanswered questions of the study.

In the English context, some light has just been cast on the issue by a study conducted at the Institute of Education (Ireson, Hallam, and Mortimore, 1999).

Study of Ability Grouping

This study drew on three separate groups of fifteen schools (chosen as to whether they had almost no setting, partial setting or setting in at least four subjects) in order to see if there were differences in: student levels of self-esteem, staff attitudes to grouping and academic progress.

The main findings were that:

- higher attaining students generally had higher self-esteem but this was overall highest in the partially set schools
- boys had more positive views of themselves than did girls, especially in maths and science
- both teachers and students expressed attitudes towards setting which were related largely to the organisation of their own schools
- teachers - on the whole - thought that setting helped the more able students but that mixed ability organisation helped their social adjustment and self-esteem
- teachers also felt that setting helped classroom management even though there were likely to be more discipline problems in lower ability classes
- setting had little impact on progress in English and science but benefited high attaining pupils in maths, though - even in maths - mixed ability was better for low attainers.

The overall conclusions of the study, therefore, were that - in contrast to many people's perceptions - ability grouping does not have a strong or uniform impact on pupil progress. As we state in our initial report: "*There appears to be a complex set of interactions between ability grouping, teachers' national attitudes, the curriculum and pedagogy*".

So to my fourth question - What are the challenges for schooling in a global future?

Some of the most important questions about schools of the future seem - to me - to be:

1) Should schools continue to function as part of a national network overseen by local government?

My provisional answer is *yes*!

Although in England the previous Government sought to free schools from local government, I do not believe it worked to the advantage of any but a minority of students - and neither does the current Government, which modified the legislation. But the new Labour government does not seem to have made up its mind on the issue and there are suggestions that a further term of office may see the end of a role in schooling for local government.

In my view this would be unfortunate since loosening ties to a community enables a school to 'choose' its students on selfish grounds. Most schools will choose the 'easy to teach' rather than the 'hard to teach' students who will end up clustered in the least attractive schools.

I believe that the inevitable result will be that the current gap between the *educational 'haves'* and the *'have nots'* will increase still further.

I accept that the differences between the funding of schools in different parts of various countries are no longer acceptable but I maintain that some local democratic control is important. Central government does not always know best what is good for schools and democratic communities must 'own' their schools in some way if they are to be genuinely democratic institutions rather than simply agents of national government.

A democratically elected tier of community government must be able to specify the ages of transfer and - for very practical reasons - define holidays and term times as well sort outing conflicts over entry policies and providing a safety net for difficulties outside of the normal.

I am not opposed to varying the tier of local government - regions might play a key role in a devolved English system - as they do in Germany, Spain and other European countries. But I am opposed to the removal of some locally elected democratic influence.

2) Will we need purpose built premises dedicated to exclusive educational use?

I believe that it will be wise to continue to build schools. They need not be restricted to our traditional designs. Indeed, there may be educational value in experimenting with radically different concepts of 'learning space'. I commend the British Government on funding the Architectural Foundation to work on the ergonomics of a modern school in south London (Carvel, 1999).

We used to build schools and universities around the four accepted public areas: an assembly hall, a chapel, a dining room and a library. The problem is that we no longer seem certain what the modern equivalents are: large assemblies in which formal rituals are enacted are no longer so common nor so feasible; organised religion and public worship in many parts of the world are maintained by only small proportions of the population; communal eating has given way to 'take-aways' and snacks; and the library is sliding into the electronic mode, accessible almost anywhere.

One solution could be the use of more flexible space: a hall large enough for assemblies, plays and concerts but which can also be divided into smaller spaces for group meetings; a multi faith religious centre which draws inspiration from the traditions of world religions but is exclusive to none; a dining room modelled on a supermarket of cuisines - and able to be used for early breakfasts and after-school snacks for children whose parents are working long hours; and a resource centre which draws together actual and virtual texts and has electronic access to information. Even so, schools would still need workrooms - for interaction with teachers or other learners or for individual learning via electronic or actual materials.

However, much electronic equipment is available in the home, I believe most parents will want their children to learn alongside their contemporaries, to learn to mix with each other and - frankly - to give them a break.....! They will still want safe places for their children to go to. They will still want trusted adults who have been trained to relate positively to children. But they will also want experts in how to learn - technically equipped to find relevant information but also conceptually equipped to turn this information into knowledge (the 'assimilation' and 'accommodation' concepts described by Piaget, 1950) and spiritually or philosophically equipped to relate it to positive values. Computers will not be able to do these things for a long time. Humans still need a human touch. So - I believe - teachers will always be needed.

School has the potential to become - again - a focal point for the community. Unlike most commercial concerns, such as shops or cafes, it should belong to the community. Profit should not be its first consideration.

Given adequate investment by the state, schools could become the electronic node centres of our societies. They could be wired to local teachers' centres and could play a key role in the training of all citizens in electronic knowledge management. Schools could be the engines of the new learning revolution - encouraging, facilitating and enabling life-long learning to shift from a slogan to a reality. So they need to be owned by the community and not the government.

This is why there needs to be a new 'covenant' between the government and the people and - equally important - a partnership (rather than a 'teacher proof' programme manual) between the government and those who work in schools.

3) What curriculum should schools follow?
The various choices include: national or international; open or closed; and academic or 'real-life'?

A closed, strictly academic national curriculum - concerned with the history of just one country, one language and its literature and dealing with the cultural values of one tribe - does not seem appropriate to a global age. In contrast, an international curriculum based on world history, multiple languages, universal science and firmly based on the best humanitarian values has much to offer. A UNESCO Commission made up of representatives of fifteen different countries - large and small, developed and developing - has already provided a model on which such a curriculum could be built (Delors, 1996).

The UNESCO model

Learning to know
Gaining a broad general education and in-depth knowledge of some subjects as a foundation for learning throughout life.

Learning to do
Acquiring a competence to deal with unforeseeable situations.

Learning to live together
Developing an understanding of other peoples' histories, traditions and cultural values.

Learning to be
Developing skill to exercise independent judgements and take personal responsibility for common goals.

Thus the UNESCO curriculum addresses not only the academic, but 'real life' learning designed to equip learners to cope with the uncertainties of the future whether in work, leisure, domestic or public walks of life.

Of course, teachers - as we know them - should not be the only people working in the new schools. Learning assistants, computer specialists and counsellors will also have parts to play.

Expecting the people who have public responsibilities for fostering learning and ensuring good order also to deal with personal problems of an emotional, health- related or sexual nature has always seemed unrealistic to me. Schools of the future should have the opportunity to draw on multi-disciplinary groups of staff.

Let me return to questions about schools of the future

4) What assessment systems should we use?
Policy makers in many other countries are promoting TIMMS-type assessments as a means of raising standards. If, however, such assessments become commonplace, there are likely to be tendencies to teach only what is tested. This could result in a narrowing of the curriculum and even the development of a very utilitarian international curriculum. In such a scenario it is also likely that Globalisation - at a later stage - will remove power from the national policy makers, just as Porter argues it has already reduced their power over business and industry (Porter, 1999).

5) Under what regulations should schools work?
In some parts of the world, including England, schools (and local authorities and even aspects of universities) are being subjected to intensive inspection. The intention - of ensuring that no publicly funded education should fall below an acceptable standard - is good; the practice, all too often, is not. Despite making explicit the criteria on which the teaching is to be judged, too many inspection teams adopt a hostile, formulaic approach to their task and too many reports appear to be less than objective in their commentaries.

This approach to inspection is characterised by a lack of trust of the teaching profession. It is a populist stance, which wins support from some newspapers and appeals to those who have found their own education unsatisfactory. It is, however, doing untold harm to the teaching profession and to educational institutions. It is most unsuitable for the education of the future for, as the UNESCO Commission states:

> *"The importance of the role of the teacher as an agent of change, promoting understanding and tolerance, has never been more obvious than today. It is likely to become even more critical in the twenty-first century. The need for*

change, from narrow nationalism to universalism, from ethnic and cultural prejudice to tolerance, understanding and pluralism, from autocracy to democracy in its various manifestations, and from a technologically divided world where high technology is the privilege of the few to a technologically united world, places enormous responsibilities on teachers who participate in the moulding of the characters and minds of the new generation".
(Delors, 1996, 141)

And so to the sixth question.

6) What costs are acceptable?
Schooling is expensive. The OECD countries, on average, spend just below 6 per cent of their Gross Domestic Product on education. Some countries spend much more - up to 9 per cent. Schools of the future are unlikely to be cheaper in the foreseeable future.

- The demand for technology is likely to continue - soon we will all want *'virtual reality opportunities'* in our classrooms. And each student will need access to the web.

- Interaction with teachers means class size will have to be contained - particularly if it is the contact with the teacher that is the particular attraction of the school over the cyber cafe.

- The needs of a modern economy which requires both parents to be in paid employment necessitates long school hours. In most societies, parents are just left to flounder. But this makes no sense. An integrated school and after hours service is the obvious - but expensive - solution.

- Future school buildings will be expensive - if we want the buildings to reflect our best architecture and the most ergonomic features of learning support.

But what better investment can the world make than in its next generation?

And so to my last major question.

What is the key role of researchers?

The task is important and simple in theory. In practice though it is likely to be extremely difficult.

Maximising the potential benefits of Globalisation for schooling:

- Developing international work on new models of learning

- Undertaking research between educators and neurologists. The brain is potentially a rich area for investigation but we must beware of over-simplistic reductionist linkages between biological and behavioural actions. Serious research is going to take time.

- Carrying out independent evaluations of improvement in different countries, taking account of cultural 'caveats'. Such work is essential but the emphasis has to be on the word 'independent'. Cherry picking the results which are likely to be popular with politicians may be a short-term gain but - in the long run - is unhelpful to everyone, even the politicians.

- Raising questions to do with human rights and environmental issues. This will not always bring researchers popularity, but these are essential tasks if we are to have a positive impact on the education of the future.

and

Minimising the potential disadvantages of Globalisation for schooling:

- Resisting a global 'blueprint' for effectiveness.

- Using our research training - and the skills we have accumulated - to warn policy makers of the short-term traps into which they can so easily fall - even with the best of intentions. (The concept of the 'Hawthorne Effect' has to be taught again and again.)

- Fighting for independent investigations and never allowing sponsors to influence our findings. This can be extremely difficult to resist - as we know from investigations into smoking and other health-related areas. But unless we do resist it we will lose integrity, credibility and, ultimately, the justification for our existence. We have been granted the privilege of 'academic freedom' - and this carries a responsibility to use it.

- Drawing on evidence to interpret the data as objectively as we are able. Of course the post-modernists have warned us of the dangers of deluding ourselves with notions of perfect neutrality. It is naive to assume that we will not have our own prejudices and unconsciously seek to bias our results whenever we can. But by recognising this danger we can avoid its worst effects. Such is the value of caveats, confidence intervals and 'health warnings'.

In a global age when the art of political spinning - aided by instant communications - is reaching new heights, the wholly appropriate caution of researchers - and, of course, their striving for better and better research - must provide some balance. The international educational research community must rise to this challenge.

Let me now leave you with the quotation I cited earlier. If Wells was correct in his analysis that *"Human history becomes more and more a race between education and catastrophe"*, can we school effectiveness and improvement researchers help ensure that it is education which wins? I look forward to discussing these issues with you - during this conference or electronically over the next few weeks.

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